



Rehabilitation Engineering Research Center for  
Wireless Technologies

**VIA ECFS**

June 8, 2009

Marlene H. Dortch, Secretary  
Office of the Secretary  
Federal Communications Commission  
445 12<sup>th</sup> Street, S.W.  
TW-A325  
Washington, D.C. 20554

Re: *In the Matter of A National Broadband Plan for Our Future (GN Docket  
No. 09-51).*

Dear Ms. Dortch:

Enclosed for filing in the above referenced notice of inquiry, are comments of the  
Rehabilitation Engineering Research Center for Wireless Technologies (Wireless RERC).

Should you have any questions concerning this filing, please do not hesitate to contact me  
via phone (404-385-4640) or e-mail ([helena.mitchell@cacp.gatech.edu](mailto:helena.mitchell@cacp.gatech.edu)).

Respectfully submitted,

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Enclosure

In the Matter of )  
 )  
A National Broadband Plan for Our Future ) GN Docket No. 09-51

advanced wireless technologies and broadband services have become available in the U.S., significant issues involving access to, affordability of, and *accessibility* of these technologies still exist for people with disabilities.

In analyzing current and future broadband data, the FCC should disaggregate broadband usage based on type of disability, income, employment status, level of education, and race, and where any combination of these variables has a negative impact on broadband usage, seek to understand why and what can be done to mitigate their influence. For example, in urban environments, where broadband is readily available, there may be low usage among those earning less than \$35k<sup>3</sup> annually, not only because of the cost of access or connectivity, but also because of the cost of the computer. In a 2007 Survey of User Needs (SUN) conducted by the Wireless RERC, 35% of survey respondents with disabilities stated that Internet access was one of the most important functions of a wireless device.<sup>4</sup> However, an almost equal amount (40%) responded that cost was a barrier to use.<sup>5</sup> This raises an important question, “Would offsetting the cost of hardware encourage broadband subscription?” Generating an answer to this could be achieved by funding a program with a research component that designs a protocol to gather, track, analyze and report data on program participants.

*The NOI also seeks input from all interested parties, such as the disability community, into the national broadband plan to reflect the input of all stakeholders.*<sup>6</sup> According to the National

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<sup>3</sup>Ronald E. Rice and James E. Katz, (2003). *Comparing internet and mobile phone usage: digital divides of usage, adoption and dropouts*, Rutgers University, Telecommunications Policy Vol. 27, 597-623 at Table 6, p. 614.

<sup>4</sup> Mueller, J. and Morris, J. (2007). First Report: Findings of the Survey of User Needs (SUN). Available at [http://www.wirelessrerc.org/publications/publication\\_files/SUN\\_analysis\\_1-11-08\\_%28LB%29.pdf](http://www.wirelessrerc.org/publications/publication_files/SUN_analysis_1-11-08_%28LB%29.pdf); accessed June 8, 2009.

<sup>5</sup> Ibid.

<sup>6</sup> See NOI at ¶ 8, p.3.

Organization on Disability an estimated 54 million U.S. residents have some type of disability including: 28 million with severe hearing loss, 18.6 million with visual disabilities and approximately 25 million with physical disabilities that impinge on mobility.<sup>7</sup> A recent CDC study shows that 47.5 million of U.S. adults (21.8%) reported a disability in 2005, an increase of 3.4 million from 1999.<sup>8</sup> About 35 million American adults are over the age of 65 (12.4% of total U.S. population). The number of adults with a disability is expected to increase dramatically as the baby boomers enter into higher risk age groups over the next 20 years.<sup>9</sup> These factors can contribute to a “perfect storm” scenario if not anticipated in the planning and development of a national broadband plan.

Research indicates that in general, people with disabilities have less access to the Internet.<sup>10</sup> This fact especially applies to people with disabilities living in rural areas. Findings of the Rehabilitation Research and Training Center on Disability in Rural Communities asserts that “[d]espite the regular increases, both metro and non-metro people with disabilities have lower rates of Internet use than their geographic counterparts with no disability. However, non-metro people with disabilities have the lowest rate (26.7%).”<sup>11</sup>

The Wireless RERC submits that the build-out of broadband networks, particularly wireless based ones, can potentially create alternative employment arrangements for people with

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<sup>7</sup> National Organization on Disability. (2007) [cited 2008 Aug]. Available from: URL: <http://www.nod.org>

<sup>8</sup> CDC: *Prevalence & Most Common Causes of Disability Among Adults – United States, 2005*, MMWR, 2009; 58(16); 421-426 at <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5816a2.htm>. Due to the aging of the population, particularly the large group born during 1946--1964 ("baby boomers"), the estimated absolute number of persons reporting a disability increased 7.7%, from 44.1 to 47.5 million.

<sup>9</sup> *Id.*

<sup>10</sup> Dobransky, K. & Hargittai, E. (2006), “*The Disability Divide in Internet Access and Use*”, Information, Communication & Society, 9(3) 313-334.

<sup>11</sup> RRTC on Disability in Rural Communities, 2006, “*Ruralfacts Disability and the Digital Divide: Comparing Surveys with Disability Data*”, June 2006 RTC Facts at <http://rtc.ruralinstitute.umn.edu/TelCom/Divide.htm>.

disabilities. Unemployment rates are higher among people with disabilities, with the unemployment rate of persons with a disability in April 2009 estimated at 12.9 percent, compared with 8.4 percent for persons with no disability.<sup>12</sup> Findings from the research conducted by the Workplace Accommodations RERC leads to the conclusion that opportunities for some types of Information Communication and Technology (ICT) related workplace accommodation, such as telework<sup>13</sup> could be enhanced by more widespread deployment of broadband.<sup>14</sup> Ultimately, the use of advanced telecommunications, access to the Internet and broadband services can contribute to the creation of more flexibility in the workplace for everyone, including increasing the potential for people with disabilities to enjoy more job opportunities as well as independent living.<sup>15</sup>

Broadband provides the most equal access communications (i.e. critical transmission of American Sign Language) for deaf people, is an emergency lifeline, facilitates telemedicine, and is a key route to employment via telework. Broadband needs to be fast enough to support the current and future technologies that have the potential to impact the lives of people with disabilities. For now this probably means high quality 2-way video for relay, always-on access for text relay and other messaging<sup>16</sup> and social networking, and sufficient, secure bandwidth for telework. Burst-y, shared connections over wireless may not be adequate for all users unless

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<sup>12</sup> Labor Force Statistics from the Current Population Survey.

<sup>13</sup> Bricout, John, Baker, Paul M.A. Ward, Andrew C., and Nathan W. Moon. 2009. "Telework and the "Disability Divide," in Ferro, Enrico, Dwivedi, Yogesh K.; Gil-Garcia, J. Ramon, and Williams, Michael D. (eds.) *Overcoming Digital Divides: Constructing An Equitable And Competitive Information Society*, Hershey, PA: IGI Global.

<sup>14</sup> Baker, Paul M.A., Moon, Nathan and Andrew C. Ward. 2006. "Virtual Exclusion and Telework: Barriers and Opportunities of Technocentric Workplace Accommodation Policy," *WORK: A Journal of Prevention, Assessment and Rehabilitation*. 27(4).

<sup>15</sup> Various research reports and studies of the Wireless RERC. At [www.wirelessrerc.org](http://www.wirelessrerc.org).

<sup>16</sup> "Cassidy: Software allows disabled to work on computers." Sue Center software allows users who are disabled to send e-mails, make phone calls using Skype, and perform other functions while maintaining their privacy. Posted May 11, 2009 at <http://www.mercurynews.com>.

certain Quality of Service guarantees are built into the system to prioritize certain types of traffic, like relay services getting priority over streaming video.

The Wireless RERC now addresses its comments to the specific paragraphs of the NOI, which align the technical characteristics of the broadband network with the needs of persons with disabilities to ensure their ability to communicate and participate in the Internet Protocol-based national broadband plan.

#### **A. Approach to Developing the National Broadband Plan**

¶13) *Finally, because this plan will not be solely the Commission's to implement, we seek comment on how the Commission, in both the development and implementation of a national broadband plan, should work collaboratively with other agencies at all levels of government, with consumers, with the private sector, and with other organizations.*

Given the key role of public/private sector actors in directly shaping, and indirectly influencing the deployment of and access to broadband and high-speed Internet services and advanced technologies, it would be prudent for the FCC to include all stakeholder concerns and needs in developing and implementing a national plan beyond the typical rulemaking and formation of special study groups. Holding regional workshops has been a successful strategy of the FCC in the past. It has often helped to educate the consumer, business entities and state/local and Federal government on issues of national importance – such as broadband deployment. The Federal government has long made use of task force and working groups on issues critical to national policy and initiatives. However, often the results of these hard working entities are not implemented. Broadband is an essential vehicle allowing all Americans to participate in a wide range of services that require access to high-speed Internet. It is therefore imperative that government and the private sector work together in order to create accessible and cost effective

Internet connections at varying speeds to ensure the delivery of public safety, healthcare, education, economic development and public services to the public. There are many successful state models on how to adopt advanced high-speed Internet and telecommunications networks that can be used as a template for the FCC's efforts to bring collaborative teams together.<sup>17</sup>

The natural lead agencies should be the FCC, the Department of Commerce's National Telecommunications and Information Administration, the Department of Agriculture's Rural Utilities Service (deals with rural broadband issues), and the Department of Education's National Institute on Disability and Rehabilitation Research. The White House needs to also have a key coordinating role so that any efforts have a greater chance of success. Relevant stakeholders from consumer and trade organizations and those representing the interest and rights of people with disabilities also need to be at the table to ensure that access issues are addressed regarding high-speed Internet and other Internet Protocol technologies. Each of these groups has unique characteristics and specific needs that merit consideration. For example, many advanced technologies routinely used by businesses are designed for technologically adept users, and for those with more specialized requirements than advanced technologies used by the general consumer population<sup>18</sup>. Notwithstanding the widespread adoption of the Internet and use of high-speed broadband by the general population, people with disabilities, and other individuals with function limitations, such as the aging, have been effectively excluded; often not as much by active intent as by inadvertent oversight and lack of awareness. An important entity for

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<sup>17</sup> Joint Report of the Alliance for Public Technology and the Communications Workers of America, *State Broadband Initiatives: A Summary of State Programs Designed to Stimulate Broadband Deployment and Adoption*. July 2008. Available as an interactive database at [www.speedmatters.org/statepolicy](http://www.speedmatters.org/statepolicy).

<sup>18</sup>Ward, A.C. and Baker, P.M.A. (2005). Disabilities and Impairments: Strategies for Workplace Integration. *Behavioral Sciences & the Law*, 23(1).

twenty years has been the Alliance for Public Technology<sup>19</sup> which fosters public policy initiatives to ensure access to advanced telecommunications technology for *all* Americans, most importantly in broadband deployment.<sup>20</sup> Newer organizations such as the Coalition of Organizations for Accessible Technology (COAT)<sup>21</sup> has more than 200 affiliates in 42 states championing accessibility issues.

It is also important to include the research community in the development of a national broadband plan, given the wealth of unbiased research capacities located at many universities and within the National Academies, especially the National Research Council. For example, an important benchmark study *Broadband: Bringing Home the Bits*<sup>22</sup> examined the technologies, policies and strategies associated with broadband connectivity and made recommendations at fostering its deployment, many of which are still relevant seven years later. Research focused on people with disabilities conducted by the Wireless RERC suggests that wireless broadband devices, while increasingly available, are often designed in a manner which do not always take into account the needs and capacities of people with disabilities<sup>23</sup>. The Wireless RERC contends that heightened awareness on the part of service providers, manufacturers, and designers of the specific needs of people with disabilities will increase the accessibility and availability of broadband connectivity and therefore increase the participation of this frequently

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<sup>19</sup> [www.appt.org](http://www.appt.org).

<sup>20</sup> *Achieving Universal Broadband: Policies for Stimulating Deployment and Demand*. Alliance for Public Technology, February 2007.

<sup>21</sup> [www.coataccess.org](http://www.coataccess.org).

<sup>22</sup> *Broadband: Bringing Home the Bits*. Committee on Broadband Last Mile Technology, Computer Science and Telecommunications Board, Division on Engineering and Physical Sciences, National Research Council. National Academy Press. Washington, DC. 2002

<sup>23</sup> Rehabilitation Engineering Research Center on Mobile Wireless Technologies. (2003). "Policy and Regulatory Assessment: Key Issues, Barriers, and Opportunities for People with Disabilities." Atlanta: Wireless RERC, 2003; and Wireless RERC. (2006) "Increasing access to wireless technologies: Results of a Wireless RERC Delphi Poll." Atlanta, GA: Center for Advanced Telecommunications Policy (CACAP), Georgia Institute of Technology.



underserved population, all issues that should be considered in the development and implementation of a national broadband plan.

## **2. Defining Access to Broadband**

### **Access for People with Disabilities**

*(¶ 28) We seek comments on what it means for a person with disabilities to “have access” to broadband capabilities.*

A nationwide broadband network available everywhere and at a reasonable cost to all should be the goal of the plan. The United States should establish innovative public policy by providing equivalent access to a nationwide broadband telecommunications network for persons with disabilities. Currently, access to Video Relay and Internet Protocol (IP) relay services are the closest to providing true equivalent access to hearing and speech disabled populations, however, the networks required to support these services are generally available only in urban and suburban areas. When they are available in rural areas, they often carry higher prices, or do not provide the level of bandwidth required to fully support advanced applications such as video conferencing or video relay. These services can be used in so many ways that are critical to improving the quality of life of persons with disabilities: they can be used in telemedicine or telerehabilitation networks, providing access in rural areas or to specialists that may only be available in large metropolitan areas; they can provide distance learning opportunities delivered to the home; they can allow for telework, increasing the employment opportunities for persons with disabilities, chronically our nations most underemployed sector.

In rural communities, the initial problem may be availability; however, if stimulus funds create an impetus and means for providers' to build out rural infrastructure and the impact of the other factors (usability and affordability) remains unclear, availability may *not* result in uptake. It is necessary to approach the broadband problem with a multifaceted solution. Regarding usability and affordability, the American Foundation for the Blind (AFB) states that "access defined by market affordability would not necessarily guarantee access to the actual process of signing up for the service or, once that has been accomplished, accessing the network equipment and services"<sup>24</sup>," asserting that affordability, alone does not increase access.

Broadband services can provide a way for people to communicate, entertain, gather information, and educate themselves and others. It is a powerful tool that has been harnessed by governments, schools, and businesses to inform and engage the public. These services should be designed in a way that makes them usable by people with disabilities so that they may have every advantage and opportunity afforded to non-disabled people utilizing broadband. The Coalition of Organizations for Accessible Technology (COAT) asserts that the legal distinction between telecommunications services and information services is a barrier to assuring people with disabilities will be protected by the law and given the same opportunities for access to IP based technologies as non-disabled citizens.<sup>25</sup> With the convergence of multiple technologies into one user interface that operates on IP technology (i.e., VOIP, instant messaging) the end-

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<sup>24</sup> See reply comments filed with the Federal Communications Commission by the American Foundation for the Blind (August 1, 2002) *In the Matter of Inquiry Concerning High-Speed Access to the Internet Over Cable and Other Facilities; Internet Over Cable Declaratory Ruling; Appropriate Regulatory Treatment for Broadband Access to the Internet Over Cable Facilities* [GN Docket No. 00-185]. Available at <http://www.afb.org/Section.asp?SectionID=3&TopicID=328&SubTopicID=102&DocumentID=1814>; accessed May 18, 2009.

<sup>25</sup> Coalition of Organizations for Accessible Technology (COAT). COAT Position Statement: Expand Accessibility Safeguards to Internet Protocol Technologies. Available at <http://www.coataccess.org/node/9>, accessed May 18, 2009.

user does not necessarily see or experience the distinction between an information service and a telecommunications service. This begs the question, who ultimately benefits from the legal distinction? Stakeholders representing the interests of people with disabilities have urged the FCC to eliminate the distinction and apply access requirements based on “function, not form”.<sup>26</sup>

The Wireless RERC also supports specifying broadband access requirements for services, as well as for the web interfaces by which a consumer signs-up for and maintains IP-enabled and other consumer services including, but not limited to, distance education services, communication services, telemedicine services, utility company websites, banking, on-line retail and others. The US Access Board’s *Section 508 Standards for Electronic and Information Technology* includes technical standards for web accessibility that must be utilized by Federal agencies.<sup>27</sup> A more recently published guideline is part of the settlement agreement between the Target Corporation and The National Federation for the Blind (on behalf of legally blind citizens of the U.S. unable to access Target.com via screen access technology).<sup>28</sup> The FCC is in a unique position to extend accessibility requirements to certain public entities, thereby increasing the usability of broadband service by all people.

### **C. Effective and Efficient Mechanisms for Ensuring Access** **Other Mechanisms**

**(¶ 36)** *We seek comment generally on how effective and efficient existing mechanisms have been, whether they are marketplace mechanisms, or activities of governmental or non-governmental*

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<sup>26</sup> See comments filed with the Federal Communications Commission by the Rehabilitation Engineering Research Center on Telecommunications Access (May 28, 2004) *In the The Matter of IP-Enabled Services* [WC Docket No. 04-36]. Available at [http://fjallfoss.fcc.gov/prod/ecfs/retrieve.cgi?native\\_or\\_pdf=pdf&id\\_document=6516199836](http://fjallfoss.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6516199836); accessed May 18, 2009.

<sup>27</sup> United States Access Board (June 21, 2001). Web-based Intranet and Internet Information and Applications (1194.22). Available at <http://www.access-board.gov/sec508/guide/1194.22.htm>; accessed May 18, 2009.

<sup>28</sup> *Target Online Assistive Technology Guidelines*, v. 3.0. (June 25, 2008). Available at <http://www.nfbtargetlawsuit.com/>; accessed May 18, 2009.

*entities that supplement or complement the market mechanisms?*

In 2005, given the fact that the nature of telecommunications had changed drastically over the last decade, the Atlanta City Council sought ways to improve their policies and delivery of communications in a climate where high-speed networks were becoming more essential to conducting business with the public. The study,<sup>29</sup> identified and recommended strategies that would increase the use of technology to benefit “the public health, safety and welfare” of the residents of Atlanta. In examining policy options for the City of Atlanta, several recommendations still remain pertinent for this filing. In the report the observation was made that potential options for the City of Atlanta involved encouraging deployment of wireless broadband as well as an additional commitment to deployment of web based services more efficiently used over broadband connections. While this is generally the case, we encourage any such public sector initiatives make provisions to ensure accessibility by people with disabilities, typically underserved by broadband services. To some extent, access to broadband services and the nature of applications designed for such services are interlinked so that increasing of broadband intense service helps to drive use for broadband, which in turn, increases the likelihood for broader deployment. Thus making web service more accessible, a critical objective, is more likely to result in greater availability of broadband services.

### **Open Networks**

**(¶48)** *We seek comment on the state of broadband infrastructure and service competition, interconnection, nondiscrimination, and openness, and whether these should factor into development of a national broadband plan. We ask commenters to address the value of open*

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<sup>29</sup> Bakowski, Alan, Paul M.A. Baker, Helena Mitchell, Joe Bankoff and Todd Greene, 2005. *Final Report, City of Atlanta, Telecommunications Policy Advisory Committee: Subcommittee on New Technologies*. June 28, 2005. Prepared by the Georgia Centers for Advanced Telecommunications Technology (GCATT), Center for Advanced Communications Policy.

*networks, and specifically, the impact on investment, innovation and entrepreneurship, content, competition and affordability of broadband, among other things. For instance, has the private sector sufficiently produced open platforms, and if so, to what extent? Would further regulation encourage or discourage more open platform innovation?*

Openness is a key factor that has led to the amazing developments of the past two decades on the Internet that has changed the way many American's live, work, learn and play. Committing to less than continued and even increased openness of new broadband networks for America would be shortchanging the important goals the Congress and President have set forth in this initiative.

However, the idea that one can simply apply rules set in place by Carterphone<sup>30</sup> to new wireless broadband networks oversimplifies the issues at stake. In the realm of wireless broadband networks we are left with the problem of limited amounts of spectrum being available to support numerous applications. If the majority of wireless bandwidth is being used for streaming entertainment media, will this prevent users from accessing distance learning, video relay services for the disabled, or emergency information? Reasonable restrictions are appropriate for wireless broadband networks, however, the FCC must carefully craft regulations to ensure that service providers do not use these reasons as an excuse to prevent the access to their network of applications that will not adversely affect performance. Means for consumers to file complaints when they are being restricted from using the network must be readily available.

### **Other Mechanisms**

**(¶ 51)** *Finally, we seek comment on any national broadband policies or programs adopted by other nations or international organizations that may be useful to the Commission in this proceeding.*

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<sup>30</sup> *Use of the Carterfone Device in Message Toll Telephone Service*, 13 FCC 2d 420 (1968).

According to a study completed in 2008, the U.S. has fallen from 1<sup>st</sup> to 15<sup>th</sup> place internationally in the percentage of households with broadband.<sup>31</sup> While this represents all American households it is important to also note that only 38% of those who live in rural areas subscribe to broadband as compared to 57% in urban areas.<sup>32</sup> Those with low income (less than \$20,000), many of which have disabilities, only subscribe at around 25%. Japan, Canada and France are among countries that charge less than the US for faster speeds.<sup>33</sup> The European Commission examines issues of access to broadband as well as issues regarding people with disabilities; these ongoing efforts will have far reaching affects across the European Community. The European Competitive Telecommunications Association (ECTA), founded in 1998, supports the regulatory and commercial interests of new entrant telecoms operators, Internet Service Providers and suppliers of products and services to the communications industry. The ECTA reported recently about growth and investment in high speed networks depends on competition and warns against EU dominant service providers:

*“Brussels, 2 March 2009 – Broadband connections across the EU rose by 20% over the year, to a total of 110.5m connections, representing 22.5% of Europe’s population, according to ECTA’s latest twice-yearly EU Broadband Scorecard, published today. But the pro-competition body warns that in countries such as Spain, where the incumbent operator, Telefonica, continues to increase its control of the market with more than 57% of all retail broadband connections, the*

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<sup>31</sup> State Broadband Initiatives joint report of the APT & CWA, page 2.

<sup>32</sup> Ibid, page 1.

<sup>33</sup> Ibid, page 2.

*market has stagnated with the result that Spain is languishing below the OECD and EU average with a broadband penetration rate of only 20% and low growth rates.”*<sup>34</sup>

The Wireless RERC supports competition to reach the goals of the national broadband plan. A competitive marketplace for broadband will theoretically reduce the cost of services resulting in greater affordability by a larger number of people. However, as emphasized earlier, affordability is only part of the problem. Relying on market forces alone would neglect the population of people with special needs, as the nature of companies’ outputs is influenced by the perceived buying power of the consumer. A perception that is often unfounded. For example, people with disabilities are estimated to have over \$175 billion in discretionary spending power. Clearly these populations are impacted by technological trends and have an impact on the marketplace, and therefore regulations are necessary to protect the consumer by ensuring companies consider the needs of vulnerable populations, especially those with disabilities. In the end, product and service defined as “accessible” can improve service quality for all consumers. By example, in the United Kingdom one company developed two websites – one accessible and one more geared to the general consumer. After a year, the accessibility site proved much more popular, even with the general public.<sup>35</sup>

#### **D. Affordability and Maximum Utilization**

**(¶53)** *We seek comment on how consumers and businesses are using broadband. Similarly, we seek comment on who is (and is not) using broadband – children, immigrants, small businesses, seniors, persons of color, tribal communities, people with disabilities, people with low income, and others.*

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<sup>34</sup> See *Spain Stagnates as Telefonica Profits: Broadband Study Shows*, available at [http://www.ectaportal.com/en/news\\_item889.html](http://www.ectaportal.com/en/news_item889.html)

<sup>35</sup> Include 2009 International Conference on Inclusive Design. Commentary made by panelist.

In a recent field study conducted by the Wireless RERC<sup>36</sup> to assess the accessibility of prototype software designed to send emergency alerts to wireless devices, survey results suggested that 42% of test subjects currently receive emergency alerts via e-mail and 56%, after initially receiving the alert via any method, would turn to the Internet to confirm the information. This suggests that people with disabilities *do* rely on and trust information received on the Internet. However, it also reveals that accessing the Internet for emergency alerting information is still done at a considerably lower rate than by traditional methods such as television (92%). The Wireless RERC recommends that the FCC conduct or commission a study of broadband usage by people with disabilities to increase understanding of the various web applications utilized by this population, as well as, what types of applications they have attempted to utilize but have been denied access to because of website usability and/or service affordability and availability. The resultant data should facilitate the FCC in determining what steps to take to address “affordability and maximum utilization.”<sup>37</sup>

In the event that a high number of people with disabilities do not subscribe to broadband because the services they seek to utilize are not accessible via the web, regulations requiring the accessibility of web content are one mitigating measure the FCC can take. If a high number of people with disabilities report affordability as their main barrier, subsidization of home computers and/or broadband service could increase affordability in the short-term, and may, in the long term impact school enrollment and achievement, employment rates and better quality of life, in general, among people with disabilities. To that end, any such data gathering and social

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<sup>36</sup> Four field tests were conducted to examine the accessibility and effectiveness of EAS and CMAS alerts to wireless devices. Each test was composed of thirty volunteers broken into three groups of ten including the blind and low vision, deaf and hard-of-hearing (some individuals also used wheelchairs and/or reported having cognitive impairments such as trouble remembering or thinking).

<sup>37</sup> See NOI ¶19, p. 53.



program deployment should include a mechanism for a longitudinal evaluation study to analyze the outcomes and impacts of any mitigating measures the FCC takes overtime. While cross-sectional survey data can be beneficial in assessing the current state of broadband utilization by people with disabilities, and may even be disaggregated based on socio-economic variables, it may not provide the granular data necessary to determine the long term success or failure of a program that a longitudinal panel study can provide. Programmatic evaluation results can then be used to design or refine existing social programs, current and proposed regulations that aim to support individuals in subscribing to and utilizing broadband.

## **F. Specific Policy Goals of the National Broadband Plan**

### **Public Safety and Homeland Security**

*(¶ 72) We seek comment on how advancing public safety and homeland security is interrelated with improvements in telehealth and telemedicine delivery through broadband.*

The Wireless RERC supports telemedicine's use of advanced medical technologies, computers, and databases to store and retrieve information over high-speed information and communication facilities to provide and support health care delivery by connecting patients and health care providers. Broadband technologies offer significant possibilities for the provision of telemedicine, and its health care innovations to people with disabilities in rural areas. Rural communities face a major supply challenge, having substantially fewer primary care physicians per capita compared to urban areas (55 PCPs per 100,000 in non metropolitan areas compared to 93 PCPs per 100,000 in metropolitan areas). In fact, it is estimated that 7,000 additional primary care physicians are needed to meet the current demand in designated underserved areas.<sup>38</sup>

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<sup>38</sup>Government Accountability Office (GAO), "Primary Care Professionals: Recent Supply Trends, Projections, and Valuation of Services," GAO-08-472T, February 12, 2008. Available online: <http://www.gao.gov/new.items/d08472t.pdf>.

The recent report by Acting FCC Chairman<sup>39</sup> acknowledges the Commission's establishment of its Rural Health Care Pilot Program (Pilot Program), in 2007, to provide, among other things, funding for the construction of state or regional broadband networks and for the advanced telecommunications and information services provided over those networks for health care providers.<sup>40</sup> The goal of the Pilot Program is to stimulate the deployment of the broadband infrastructure necessary to support innovative telemedicine services to rural America. In coordination with the U.S. Department of Health and Human Services (HHS), the Pilot Program also supports the advancement of HHS's health information technology (health IT) initiatives for electronic health records and create vital broadband links for disaster preparedness and emergency response to any large-scale emergency or public health crisis.<sup>41</sup>

Wireless broadband technologies offer significant possibilities for telemedicine to improve healthcare, and this is especially critical to people with disabilities that might otherwise be unable to fully benefit from healthcare innovations. Persons with disabilities often face substantial barriers when seeking health care in both urban and rural settings. Rural regions display higher absolute rates of disability than urban areas, although adjusting for poverty, low education, and other markers of social disadvantage narrows these gaps. Rural communities often suffer from clinician shortages, the absence of specialists, and fragile financial footing of

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<sup>39</sup> *Bringing Broadband to Rural America, Report on a Rural Broadband Strategy*, Michael J. Copps, Acting Chairman, Federal Communications Commission, May 22, 2009 at ¶ 129, p. 57. Available at [http://hraunfoss.fcc.gov/edocs\\_public/attachmatch/DOC-291012A1.pdf](http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-291012A1.pdf).

<sup>40</sup> See Rural Health Care Support Mechanism, WC Docket No. 02-60, Order, 22 FCC Rcd 20360 (2007) (RHC Pilot Selection Order); Rural Health Care Support Mechanism, WC Docket No. 02-60, Order, 21 FCC Rcd 1111 (2006) (2006 Rural Health Care Pilot Program Order). The Rural Health Care Pilot Program also supports costs associated with connecting to nationwide backbone providers, Internet2 or National LambdaRail, and connecting to the public Internet. See RHC Pilot Selection Order, 22 FCC Rcd at 20361, para. 2.

<sup>41</sup> See 2006 Rural Health Care Pilot Program Order, 21 FCC Rcd 11111.

existing providers (e.g., lacking economies of scale because of small, highly dispersed patient panels, high fixed overhead rates per patient). The number of rural areas designated as “health professional shortage areas” has grown over the last 20 years, primarily driven by recruitment difficulties.<sup>42</sup>

**(¶¶ 77-78)** *In developing the national broadband plan, what is the interplay with our current rulemaking addressing public safety services in the 700 MHz band? What special considerations, concerns or limitations should be taken into account specifically with respect to public safety broadband deployment in rural areas?*

Comments submitted by the Wireless RERC in the 700 MHz band proceedings endorse the deployment of a national interoperable broadband network, and the availability of a full range of applications and services to the users of the network, especially for the delivery of accessible emergency communications to the public, including vulnerable populations.<sup>43</sup>

The Wireless RERC supports the allocation of fixed and mobile spectrum for the transition of communications networks to the proposed national IP-based broadband infrastructure. The additional spectrum bandwidth would enhance the provision of innovative and dynamic IP-based services to people with disabilities, including public safety communications. The Wireless RERC recently questioned two focus groups<sup>44</sup> “Do video alerts in American Sign Language (ASL) enhance the understanding of public emergency alerts – above and beyond text alerts – by people who are deaf?” The “Summary of Focus Group Results” indicated that (1) the concept of ASL

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<sup>42</sup> Lisa I. Lezzoni, Mary B. Killeen and Bonnie L. O’Day, 2006. “Rural Residents with Disabilities Confront Substantial Barriers to Obtaining Primary Care.” *Health Services Research*. Available at <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=1797079>.

<sup>43</sup> Wireless RERC Comments filed June 19, 2008, Second Further Notice of Proposed Rulemaking, *Service Rules for the 698-746, 747-762 and 777-792 MHz bands (WT Docket No. 06-150); Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band (PS Docket No. 06-229)*.

<sup>44</sup> Wireless RERC, Wireless Emergency Communications Video Alerts in American Sign Language Focus Group, March 9, 2009.

video alerts represented a useful tool for people who are deaf; (2) the group participants were pleased to see the ASL video on their cell phones; and (3) the limited availability of emergency information in ASL caused focus group members to lack awareness of actual national events or local emergencies until days, even weeks later. Video relay services (VRS) also ensure that persons with disabilities who desire to use IP-enabled services can obtain access to emergency services<sup>45</sup>, and “...have the fullest possible access to the nation’s communications systems.”<sup>46</sup>

The plan for the broadband infrastructure should enhance connectivity and interoperability by local authorities and public safety entities for faster exchange of notifications and information between agency officials, and for the delivery of such essential public safety services as emergency alerting in all modes to citizens, including persons with disabilities. Imminent public health threats<sup>47</sup> and sudden emergency events require rapid dissemination of emergency alerts, especially to rural areas populated by persons with disabilities, irrespective of what communications technologies are in use.<sup>48</sup>

Access to web sites, such as webmd.com and cdc.gov, is also critical to segments of the population, such as people with disabilities, during a pandemic or other disease outbreak. Public safety entities can post maps, directions for evacuations and other instructions in great detail on the Internet that requires action during emergencies. Language translation programs on the Internet provide emergency information to foreign population segments unreachable by

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<sup>45</sup> Second Report and Order and Order on Reconsideration, *Telecommunications Relay Services and Speech-to-Speech Service for Individuals with Hearing and Speech Disabilities*, (CG Docket No. 03-123 and CC Docket No. 98-67); *E911 Requirements for IP-Enabled Service Providers*, (WC Docket No. 05-196, released December 19, 2008 at ¶ 16, p. 9.

<sup>46</sup> *Id.* at ¶ 67, pp.31-32.

<sup>47</sup> “Agencies tap online channels to spread the word on swine flu outbreak”, available at <http://gcn.com/articles/2009/05/04/update1-cdc-swine-flu-networking.aspx>.

<sup>48</sup> Commercial Mobile Alert System, *First Report and Order*, PS Docket No. 07-287, April 9, 2008 at ¶ 3, p.3.

conventional media methods. People with disabilities need these broadband services and other applications, such as Mapquest and Google, to provide for their safety and to function in today's society.

Based on the Commission's definition of rural<sup>49</sup>, roughly 61 million people, or 21 percent of the US population live in rural counties.<sup>50</sup> According to a study by the University of Montana Rural Institute<sup>51</sup>, the nation's non-metropolitan rural areas are home to a higher percentage of people with disabilities. The study reports one-fifth of the U.S. population (about 44.5 million people) lives in the nation's 2,052 non-metropolitan counties-spread out over 75 percent of U.S. land area.<sup>52</sup> Approximately 10.8 million of these rural Americans have disabilities.<sup>53</sup> The study further finds that people with disabilities make up 22 percent of the non-metropolitan population, compared to 18 percent in metropolitan areas.<sup>54</sup>

The overall quality of health care will be significantly improved to people with disabilities in rural parts of the United States when accessible telemedicine and other telehealth services are integrated into the national broadband plan.

## **H. Improving Government Performance and Coordination with Stakeholders**

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<sup>49</sup> The Commission adopted a "base line" definition of rural as a county with a population density of 100 persons or fewer per square mile. *Twelfth Report* at ¶ 103, p. 51.

<sup>50</sup> *Twelfth Report*, at ¶ 37, p. 24

<sup>51</sup> Update on the Demography of Rural Disability Part One: Rural and Urban Research and Training Center on Disability in Rural Communities, The University of Montana Rural Institute April 2005, ("Part One") <http://rtc.ruralinstitute.umt.edu/RuDis/RuDemography.htm>.

<sup>52</sup> Update on the Demography of Rural Disability Part Two: Non-Metropolitan and Metropolitan Research and Training Center on Disability in Rural Communities, □The University of Montana Rural Institute, April 2005, ("Part Two"), <http://rtc.ruralinstitute.umt.edu/RuDis/NonMetro.htm>.

<sup>53</sup> See University of Montana Rural Institute, Part One.

<sup>54</sup> See University of Montana Rural Institute, "Table 1: Disability Demographics for U.S. Metropolitan and Non-metropolitan Counties", Part Two.

*(¶ 118) We also seek comment on how the federal government can use web-based systems to coordinate broadband rollout with tribal, state, and local governments and other interested groups and individuals. We ask how these systems may be made accessible to individuals with disabilities. We also ask whether we should develop other systems specifically to assist individuals and organizations that lack broadband access.*

It is essential that the FCC provide web-based systems to coordinate the broadband rollout with all interested Americans; and we are pleased that the FCC is asking for input in how to make such systems accessible to users with disabilities. The bare minimum the FCC must do is to support the guidelines provided by the Access Board for Section 508 of the Rehabilitation Act of 1973 that provide for the accessibility of Federal IT systems.<sup>55</sup> However, these guidelines are in process of being revised to cover new technologies that are now available under Web 2.0 and broadband networks. A richer goal would be to strive to comply with version 2.0 of the World Wide Web Consortium's (W3C) Web Content Accessibility Guidelines (WCAG 2.0).<sup>56</sup> These guidelines provide more accessible access to interactive, rich media web content as is frequently used on broadband networks.

In closing, the Wireless RERC stresses the importance of the national broadband plan addressing the availability, affordability and usability of the IP-based infrastructure by persons with disabilities to access emergency communications, telework, telemedicine, distance learning services and government websites.

Respectfully submitted.

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<sup>55</sup> See Section 508 Homepage: Electronic and Information Technology at <http://www.access-board.gov/508.htm>.

<sup>56</sup> See <http://www.w3.org/TR/WCAG20/>.

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